

REMARKS

1.Objections to the Drawings

The Examiner has restated the Draftsperson's objections in the Office Action. A set of corrected replacement drawings is attached, with an Amendment to Figure 2 to include label "V+".

2. Claim Rejections under 35 U.S.C. §112

In the Office Action, the Examiner has rejected Claims 1-11, 20 and 28 under 35 U.S.C. §112 as being indefinite. Specifically, regarding Claims 1, 9, 10 and 28, the Examiner has asserted that the claims are incomplete for omitting essential structural cooperative relationship of the elements, citing MPEP § 2172.01. MPEP § 2172.01 states that a rejection under 35 U.S.C. §112, second paragraph, may be issued where a claim fails to interrelate essential elements of the invention as defined by applicants in the specification, not for omitting structural cooperative relationship of the elements as necessary (for a person of ordinary skill in the art) to practice the invention, which is the standard for a rejection under 35 U.S.C. §112, first paragraph.

However, Applicant has amended Claims 1, 9, 10 and 28 to recite one or more capacitors connected in functional series

between the amplifier output and a terminal of the laser diode, in order to more particularly point out the structure and features of the present invention.

The Examiner further asserts that the claims do not read on Figure 2, stating that Figure 2 shows the [amplifier] output capacitively coupled to the bias circuit before [being] coupled to the laser diode. The Examiner further states that [Figure 2] does not support the [Claim] because no capacitance couples to the laser diode. This is incorrect. Figure 2 clearly shows that the output of amplifier A4 is connected through C2C capacitor array 14, then through capacitor Cext to laser diode D2. The bias circuit includes amplifier A1 and A2 and the modulation circuit includes amplifier A4. The modulation circuit path does not pass through the bias circuit before being coupled to the laser diode. Claim 1 specifically recites that the output that is capacitively coupled to the laser diode is an amplifier output and that the amplifier recited is the amplifier that superimposes the AC signal on the DC operating point of the laser diode - which is amplifier A4 in Figure 2.

Next, the Examiner states that the phrase "programmable current source" renders Claim 20 indefinite, as it is not clear what is regarded as a programmable current source. The Applicant has Amended Claim 20 to more particularly point out that the current source is connected to the memory recited in Claim 19 and

is responsive to values stored in that memory. An example of a programmable current source is provided in Figure 6 and the associated description at page 24, line 11 of the specification, but the invention is not limited to the example provided, and Claim 20 is directed to any programmable current source that generates a current value from the settings in programmable memory as recited in Claim 19. The term programmable current source, especially in the context of the functional language provided which requires that the programmable current source be responsive to settings from the memory, indicates a programmable current source that can be programmed via one or more stored values, as understood by those of ordinary skill in the art of electronic circuits.

Finally, the Examiner has rejected Claims 37 and 45-46 as indefinite, asserting that the phrase "bias circuit having power supply input coupled to a power supply rail" and "a voltage reference coupled to said power supply rail for biasing a monitor diode optically coupled to said laser diode" is not supported by the figures. Applicant respectfully disagrees and points out that Figure 2 shows the voltage reference (**bandgap**), which is described in the specification at page 16, line 21 through page 17, line 4. Further, at page 17, lines 4-7, the specification clearly states that the bandgap reference is provided for biasing the monitor diode, and Figure 2 shows a connection from the bandgap reference

through buffer amplifier A3 and resistor R1 to bias monitor diode D1. That the voltage reference is coupled to the power supply rail is clear from Figure 2 and in particular, a label (V+) has been added in the replacement Figure 2 (attached) that indicates the location of the positive power supply rail (power supply input of laser diode controller IC 10) and this connection is described at page 17 lines 2-3. Therefore, Applicants believe the rejection of Claims 37 and 45-46 has been overcome.

For the reasons stated above, Applicant believes that all of the rejections of the Claims under 35 U.S.C. §112 have been overcome.

3. Claim Rejections under 35 U.S.C. §102

In the Office Action, the Examiner has rejected Claims 12, 17-20, 23-27, 29-30, 33-34, 40 and 42-50 under 35 U.S.C. 102(b) as being anticipated by Taguchi, et al. (U.S. 6,345,062). Applicants respectfully disagree.

Claim 12 (and similarly independent Claims 23, 24 and 29 as well as their dependent claims 18-20, 23-27, 30 and 33-34) recite a control circuit (or other means or method steps) for controlling a response time of a control circuit that couples an amplifier that provides the AC modulation to the laser diode, whereby a transition time of the AC modulation may be adjusted and a programmable memory for storing values from which the transition

time is set in conformity therewith. The Examiner asserts that Taguchi teaches a control circuit having an adjustable response whereby a transition time of the AC signal may be adjusted (pulse generator 211). The Examiner further references Column 7 lines 46-60 and Figure 3 with respect to such control circuit in a further portion of his rejection.

Neither Figure 3 nor Figure 10 (which includes pulse generator 211) include a control circuit having an adjustable response whereby a transition time of an AC modulating signal may be adjusted. The specification from page 18, line 14 through page 19, line 3 makes it clear that transition times are the rise and fall times of the AC modulating signal, is the common use of transition time as a term of art in the field of digital signaling. There is no control of the rise and/or fall times of the modulating signals in either Figure 3 nor Figure 10 of Taguchi. Neither does the cited portion of the Taguchi specification (which is a section in the Brief Description of the Drawings) indicate that transition time is controlled by Taguchi. Further, the description of the function of pulse generator 211 at col. 15, lines 59-65 of Taguchi indicates that the pulse generator controls the "timing" of the application of the feedback signals to the laser diode drive circuit, but nowhere does Taguchi indicate that the rise time and/or fall times are controlled.

Therefore, Taguchi does not teach the elements of the above-recited Claims which include a control circuit for controlling rise and/or fall time and a programmable memory coupled to the control circuit for supplying values from which the transition time is set in conformity therewith. Therefore, Applicant believes that Claims 12, 17-20, 23-27, 29-30 and 33-34 should be allowed.

Claim 37 (and similarly other independent Claims 45 and 46 along with dependent Claims 38-50) recites an improved bias circuit including: "a voltage reference coupled to said power supply rail for biasing a monitor diode optically coupled to said laser diode, such that variations in said power supply rail are not reflected in the bias imposed on said monitor diode." Taguchi (as argued in the Amendment filed December 27, 2002 and reiterated in the Amendment filed August 11, 2003) teaches direct connection of the monitor diode to the power supply rail. There should be no confusion as between a power supply rail and the voltage reference of the above-listed Claims, as the power supply rail is included therein as a separate element of the Claims.

The Examiner refers to Figure 9 as disclosing a voltage reference coupled to the power supply diode for biasing a monitor diode.

However, Figure 9 clearly shows monitor diode 151 connected to power supply rail Vcc and not to a voltage reference circuit. The other terminal of monitor diode 151 is connected to a current-to-current converter 103, to amplifier 105 and to comparator 115.

None of the connections to monitor diode 151 is a voltage reference and therefore, Taguchi lacks the advantages of the embodiment of the above-recited Claims, as any noise present on the Vcc power supply rail will affect the operation of monitor diode 151. None of the other embodiments of Taguchi provide a monitor diode voltage reference bias circuit and therefore Taguchi does not anticipate the claimed invention as recited in Claims 37-50. Therefore, for the above-stated reasons Claims 37-50 should be allowed.

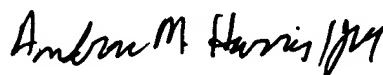
For each and all of the above-stated reasons, Applicant believes that all of the rejections under 35 U.S.C. §102(b) have been traversed and that all of the rejected Claims should be allowed.

CONCLUSION

In conclusion, Applicant respectfully submits that this Amendment, in view of the Remarks offered in conjunction therewith, is fully responsive to all aspects of the objections and rejections tendered by the Examiner in the Office Action. Applicant respectfully submits that he has demonstrated that the above-identified Patent Application, including Claims 1-15 and 18-50, is in condition for allowance. Such action is earnestly solicited.

No fee is believed to be required in connection with this Amendment. However, if there are any fees incurred by this Amendment Letter, please deduct them from our deposit account No. 23-0830.

Respectfully submitted,



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